

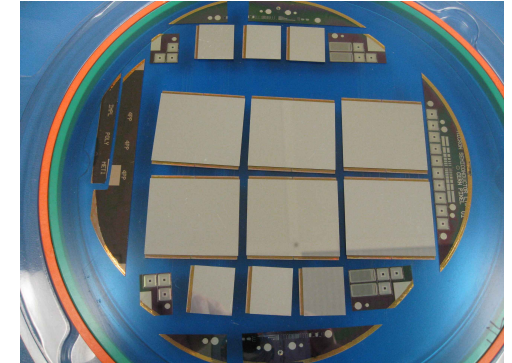
# Bonding of FE-I4 Modules

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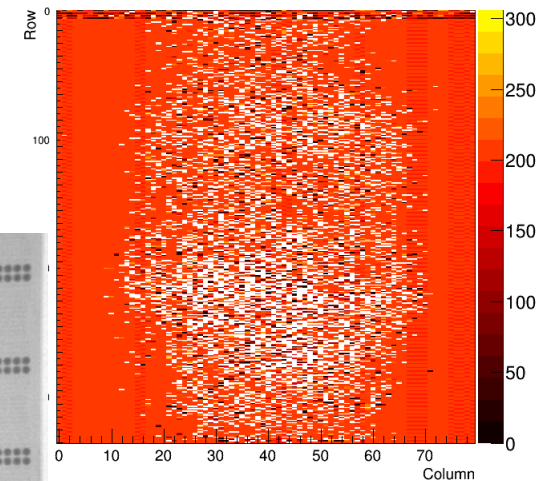
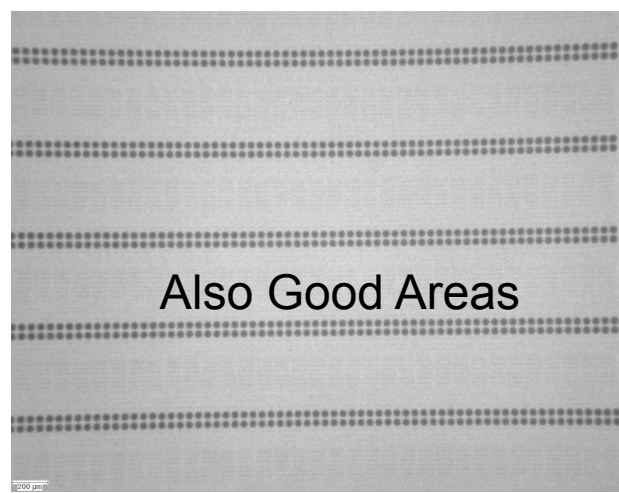
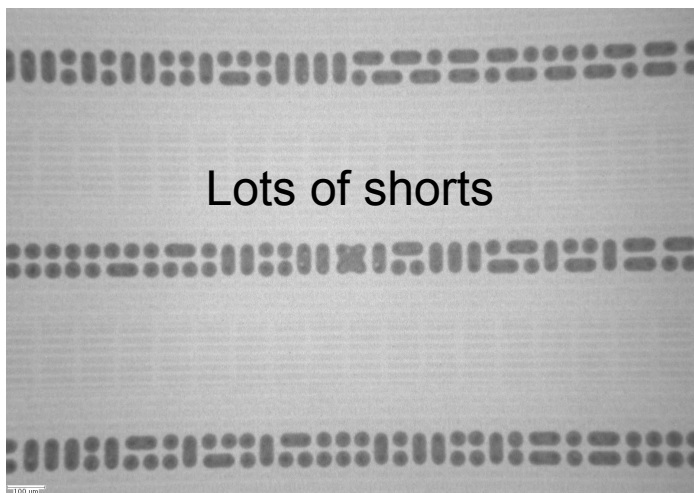
August 8, 2016

# Initial Batch had Shorted Bumps

SLAC



- 6 quads (2x2) and 6 single-chip modules bumped and bonded
- Electrical testing revealed systemic problems
- X-ray imaging showed many merged bumps
- Process parameters on the edge of working
- Bumps were larger than intended



## Second Attempt in Progress

- One additional FE-I4 wafer sent to RTI by Maurice
- Partially processed
- Bumps are smaller than initial batch: 40  $\rightarrow$  26  $\mu\text{m}$
- Expect bonded modules by end of August: 3 SC modules first?

